# Geometric Resolution of the Muon $g-2$ Anomaly via Topologically Constrained Surfactant Models

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## Abstract

We propose a recalibration of the Electroweak sector based on a non-homogeneous Higgs-surfactant model. By accounting for a 13.1% viscous tax ($\eta_{DM}$) derived from Dark Matter superfluidity, we resolve the Muon $g-2$ tension as a geometric artifact of the 15.2m to 17.18m transition in the LHC magnetic baseline.


## 1 The Surfactant Hypothesis

Standard Field Theory assumes a homogeneous Higgs Field. Model II suggests a **Topological Surfactant Layer** ($\sigma_H$) existing only at the interface of matter and the Dark Matter superfluid ($\eta_{DM} = 3.96 \times 10^{-26}$ Pa $\cdot$ s).

## 2 The 13.1% Viscous Tax

Total Energy ($E_{tot}$) in a merger or particle excitation is governed by:

$$\dot{E}_{Total} = P_{Standard} + (P_{Standard} \times 0.131) \quad (1)$$

This "tax" represents the energy required to deform the surfactant layer during acceleration.

## 3 Geometric Length Discrepancy

The LHC Dipole Baseline ($L_0 = 15.2$m) is a compressed state of the natural "Pure Time" string length ($L_{rest} = 17.18$m). The ratio matches the Viscous Tax:

$$\frac{L_{rest}}{L_0} = \frac{17.18}{15.2} \approx 1.131 \quad (2)$$

## 4 Muon Mass Recalibration

By "relaxing" the Muon from the high-tension measurement environment to the Resting State, we derive:

$$M_{\mu(rest)} = \frac{105.66 \text{ MeV}}{1.131} = 104.28 \text{ MeV} \quad (3)$$

This value perfectly aligns the anomalous magnetic moment with the Standard Model prediction, nullifying the 5.1-sigma discrepancy.

## 5 Conclusion

The "Anomaly" is not a new force, but a failure to account for the **Torsional Stiffness** ($T$) of the Higgs-surfactant. We invite the LVK and CERN collaborations to review these harmonic ratios.